

L Number	Hits	Search Text	DB	Time stamp
1	93	photoacid same (carboxylic adj acid)	USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/09/23 09:53
2	227653	surfactant	USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/09/23 09:53
3	29	(photoacid same (carboxylic adj acid)) and surfactant	USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/09/23 10:01
4	64	(photoacid same (carboxylic adj acid)) not ((photoacid same (carboxylic adj acid)) and surfactant)	USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/09/23 10:11
5	127282	sulfonic adj acid	USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/09/23 10:13
6	278009	carboxylic adj acid	USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/09/23 10:11
7	307147	photosensitive or photoresist	USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/09/23 10:12
8	4045	(sulfonic adj acid) and (carboxylic adj acid) and (photosensitive or photoresist)	USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/09/23 10:12
9	22162	positive and photoresist	USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/09/23 10:14
10	967	(sulfonic adj acid) and (carboxylic adj acid) and (positive and photoresist)	USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/09/23 10:12
11	456	surfactant and ((sulfonic adj acid) and (carboxylic adj acid) and (positive and photoresist))	USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/09/23 10:12
12	44039	(sulfonic adj acid) and (carboxylic adj acid)	USPAT	2002/09/23 10:13
13	16428	positive and photoresist	USPAT	2002/09/23 10:14
14	946	((sulfonic adj acid) and (carboxylic adj acid)) and (positive and photoresist)	USPAT	2002/09/23 10:14
15	456	surfactant and (((sulfonic adj acid) and (carboxylic adj acid)) and (positive and photoresist))	USPAT	2002/09/23 11:15
16	2	jp-2001100421-\$ did.	USPAT; JPO; DERWENT	2002/09/23 11:19
17	2	jp-2001033974-\$ did.	USPAT; JPO; DERWENT	2002/09/23 11:20
18	2	jp-2000258913-\$ did.	USPAT; JPO; DERWENT	2002/09/23 11:22
19	2	jp-2000235264-\$ did.	USPAT; JPO; DERWENT	2002/09/23 11:30

20	3	6270941.pn.	USPAT; JPO; DERWENT	2002/09/23 11:25
21	2	6156477.pn.	USPAT; JPO; DERWENT	2002/09/23 11:29
22	2	6274286.pn.	USPAT; JPO; DERWENT	2002/09/23 11:29
23	2	jp-11282163-\$ did.	USPAT; JPO; DERWENT	2002/09/23 11:56
24	0	photoacid adj mixture	USPAT	2002/09/23 11:31
25	18	photoacid near2 mixture	USPAT	2002/09/23 11:31
26	4	photoacid near2 blend	USPAT	2002/09/23 11:32
27	7	(carboxylic adj acid) and (photoacid near2 mixture)	USPAT	2002/09/23 11:34
28	2479	430/270.1.ccls.	USPAT	2002/09/23 11:34
29	609	corless	USPAT	2002/09/23 11:34
30	24	430/270.1.ccls. and corless	USPAT	2002/09/23 11:35
31	3654	ashton	USPAT	2002/09/23 11:35
32	7	(430/270.1.ccls. and corless) and ashton	USPAT	2002/09/23 11:38
33	2567	strong adj acid and weak adj acid	USPAT	2002/09/23 11:39
34	90	photoresist and (strong adj acid and weak adj acid)	USPAT	2002/09/23 11:39
35	39	(carboxylic adj acid) and (photoresist and (strong adj acid and weak adj acid))	USPAT	2002/09/23 11:40
36	2	jp-05181279-\$ did.	USPAT; JPO; DERWENT	2002/09/23 12:01
38	5	diphenyliodonium adj acetate	USPAT; JPO; DERWENT	2002/09/23 12:02
37	14	triphenylsulfonium adj acetate	USPAT; JPO; DERWENT	2002/09/23 12:34
39	2	5852128.pn.	USPAT; JPO; DERWENT	2002/09/23 12:35

(B) a **photocid** generator comprising two or more chemical compounds, one being a compound which upon exposure to radiation generates a **carboxylic acid** having a boiling point of 150. degree. C. or higher under atmospheric pressure and the other a compound which upon exposure to radiation generates an acid other than a **carboxylic acid** (the resin composition described above is hereinafter referred to as "negative tone resin composition").

Detailed Description Text - DETX (55):

The **photocid** generator used in the positive tone resin composition (as the component (B)) and in the negative tone resin composition (as the component (B)) comprises two or more chemical compounds, wherein at least one of the constituents comprises "a compound that upon exposure to radiation generates a **carboxylic acid** having a boiling point of 150. degree. C. or higher under atmospheric pressure" (hereinafter called the "acid generator (B1)"), and also at least one of the constituents comprises "a compound that upon exposure to radiation generates an acid other than a **carboxylic acid**" (hereinafter called the "acid generator (B2)").

Detailed Description Text - DETX (94):

Surfactant

Detailed Description Text - DETX (95):

Further, in the positive tone resin composition and the negative tone resin composition, **surfactants** may be compounded to improve coatability, striation control, or the radiation sensitive resin composition developability.

Detailed Description Text - DETX (96):

As such a **surfactant**, any anionic, cationic, nonionic, or ampholytic type **surfactant** can be used, while the nonionic type is preferred among those mentioned. Specific examples of nonionic **surfactants** include, in addition to those generically known as polyoxyethylene--higher alkyl ethers, polyoxyethylene--higher alkylphenyl ethers, and polyethylene glycol--higher fatty acid diesters, the product series commercially known under the trademarks of KP (manufactured by Shin-Etsu Chemical Co., Ltd.), Polyflow (manufactured by Kyoeisha Chemical Co., Ltd.), EF Top (manufactured by Tohken Product Co., Ltd.),

United States Patent (1)

Kobayashi et al.

(1) Patent Number: 6,136,500

(4) Date of Patent: Oct. 24, 2000

[54] RADIATION SENSITIVE RESIN COMPOSITION

[73] Inventor: Etsuji Kobayashi; Makoto Shimura; Takayoshi Yamauchi; Shiro Arai; Iwaoaga, all of Yokohama, Japan

[77] Assignee: JSR Corporation, Tokyo, Japan

[21] Appl. No.: 09/135,633

[22] Filed: Aug. 18, 1998

[10] Foreign Applications Priority Data

Aug. 18, 1997 [JP] Japan 9-218463

[11] Int. Cl.: G03F 7/08; G03F 7/39

[12] U.S. Cl.: 433/279.3; 436/214; 436/221

[16] Field of Search: 433/279.3; 914; 436/921

[52] References Cited

U.S. PATENT DOCUMENTS

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6 440 064 8/1979 European Pat. Of.

0 577 780 11/1993 European Pat. Of.

43 23 269 1/1993 Germany.

Primary Examiner—Jean Stalter

Assistant Examiner—Rebecca A. Akers

Attorney, Agent, or Firm—Ochiai, Saito, McClintock,

Malik & Novack, PC

[57] ABSTRACT

Positive as well as negative radiation sensitive resin compositions that, in addition to being capable of providing excellent resolution and pattern profile, are particularly excellent to providing the precision of the *one-side* resist pattern formation in the *one-side* exposure. The positive type radiation sensitive resin composition comprises (A) (a) an acid-decomposable group-containing resin, or (b) an alkali-soluble resin and an alkali dissolution controller; and (B) a photocid generator comprising a compound that upon exposure to radiation generates a **carboxylic acid** having a boiling point of 150. degree. C. or higher, and a compound that upon exposure to radiation generates an acid other than a **carboxylic acid**. The negative type radiation sensitive resin composition comprises (C) an alkali-soluble resin, (D) a *one-side* holding agent, and/or component (B) as described above.

12 Claims, 1 Drawing Sheet

US-PAT-NO: 5627006

DOCUMENT-IDENTIFIER: US 5627006 A

TITLE: Resist material

----- KWIC -----

Detailed Description Text - DETX (2):

In order to achieve the above object, the present inventors earnestly investigated in search of a combination of a polymer and a **photoacid** generator which permits sufficient chemical amplification to give a good profile of pattern without a change of the dimensions of the pattern with the lapse of time. Consequently, the present inventors found that when a polymer obtained by reacting isopropenyl alkyl ether, 2-alkoxy-1-butene, isopropenyl trimethylsilyl ether or isopropenyl benzyl ether with a resin having phenolic hydroxyl groups is used as resin component (a) and a photosensitive compound capable of generating a **carboxylic acid**, a weak acid upon exposure to light is used as **photoacid** generator (b), said polymer releases a protecting group very easily to become soluble in an alkali developing solution, without any influence of basic substances such as organic amines and ammonia which are generated in the production of a semiconductor device, so that the above object can be achieved. Thus, this invention has been accomplished. There has not yet been reported a technique of utilizing a **carboxylic acid**, a weak acid, in a chemical amplified type resist material, and it is surprising that various problems which have heretofore taken place can be solved by use of a **carboxylic acid**.

Detailed Description Text - DETX (10):

As the photosensitive compound (b) capable of generating a **carboxylic acid** upon exposure to light which is used in this invention (hereinafter abbreviated as "the **photoacid** generator"), any photosensitive compound may be used so long as it generates a **carboxylic acid** upon exposure to light and has no undesirable influence on the profile of a photoresist pattern. As **photoacid** generators particularly preferable in this invention, there can be exemplified compounds having in the molecule one or more diazodiketo groups ($-\text{CO}-\text{C}(\text{dbd.N.sub.2})-\text{CO}-$) or one or more diazoketo groups ($-\text{CO}-\text{C}(\text{dbd.N.sub.2})-$) which are represented, for example, by the following formulas (1) to (6): ##STR6## wherein R.sup.1 is a hydrogen atom, a cycloalkyl

United States Patent [19]

Ueno et al.

[11] Patent Number: 5,627,006

[43] Date of Patent: May 6, 1997

[54] RESIST MATERIAL

[51] Inventor: Masayoshi Ochiai; Keiji Onozaki; Mitsuaki Fujii, all of Kawagoe, Japan

[73] Assignee: Nippon Pure Chemical Industries, Ltd.; Matsushita Electric Industrial Co., Ltd., both of Osaka, Japan

[21] Appl. No.: 08/320,220

[22] Filed: Apr. 18, 1995

Related U.S. Application Data

[31] Continuation of Ser. No. 08/315,154, Aug. 26, 1994, abandoned, which is a continuation of Ser. No. 08/039,767, Dec. 11, 1992, abandoned.

[30] Foreign Application Priority Data

[32] Date 14, 1991 [33] Japan

[34] Int. Cl. 6 G03F 7/00; G03F 7/04

[35] U.S. Cl. 430/182; 430/170; 430/270.1;

430/324; 430/339; 430/322; 430/323; 430/324

522/213; 522/215; 522/259

[36] Field of Search 430/905, 170, 152, 220, 223, 224, 225

522/213, 522/259

[37] References Cited

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Derwent Abstracts of EP 342,939, Nov. 23, 1993.

Primary Examiner-John S. Cho
Attorney, Agent or Firm-AZIZ, WERNER, HAZEL
McLEOD, & NAGLE

[57] ABSTRACT

A photoresist composition comprising (a) a differently substituted special resin, (b) a photo-sensitive compound capable of generating a carboxylic acid, and (c) a solvent. It is effective for pattern formation using deep ultraviolet, X-ray or electron beam, etc.

14 Claims, 1 Drawing Sheet

[50] Details [51] Text [52] Image [53] HTML

[54] KWIC [55] Details [56] Text [57] Image [58] HTML

Full

US-PAT-NO: 5308744

DOCUMENT-IDENTIFIER: US 5308744 A

TITLE: Source of photochemically generated acids from diazonaphthoquinone sulfonates of nitrobenzyl derivatives

----- KWIC -----

Abstract Text - ABTX (8):

exhibits unprecedented sensitivity to actinic radiation. This compound is photochemically transformed from a non-acidic entity to photoproducts which contain both sulfonic and carboxylic acid functional groups. The acid generator is effective with polymers having acid labile groups, converting them into alkaline-soluble polymers, and with polymers which do not have such acid labile groups. Positive or negative working photoresist compositions containing the new photoacid generator have unparalleled performance characteristics because of the increased acidity generated per quantum of light.

Detailed Description Text - DETX (10):

Additives such as surfactants, anti-oxidants, pigments, dyes, sensitizers, and de-foaming agents may be incorporated into the photoresist compositions of this invention. Organic solvents are used to adjust the viscosity of the photoresist composition and facilitate the application of the photoresist to the substrate by spin coating, flow coating, roll coating, or any other conventional method. Examples of the solvents include ethyl lactate, glycol ethers, such as mono- and di-alkyl ethers of ethylene and diethylene glycol ethylene glycol, acetates and other lower carboxylic acid esters of the monoalkyl ethers, aromatic hydrocarbons, ketones, and the like. The concentration of the photoresist composition in the solution may be from about 25 to about 70% by weight.

United States Patent

US 5308744

Patent Number: 5,308,744

Date of Patent: May 3, 1994

Koss

[54] SOURCES OF PHOTOCHEMICALLY GENERATED ACIDS FROM DIAZONAPHTHOQUINONE SULFONATES OF NITROBENZYL DERIVATIVES

[75] Inventor: Thomas A. Koss, Riverdale, Calif.

[73] Assignee: Morton International, Inc., Chicago,

IL, U.S.A.

[21] Appl. No.: 62/923

[36] Filed: June 5, 1993

[52] Int. Cl. — G03F 1/10

[58] U.S. Cl. — 432/126, 432/125

432/119, 432/172, 432/115, 432/170, 432/123

432/157

[10] Field of Search: 432/192, 193, 181, 125

432/120, 270, 162, 134/154, 217

[56] Examined by: Koss

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Assistant Examiner—John S. Chin
Attorney, Agent, or Firm—Robert M. Dierck, Gerald E. White

[37] ABSTRACT

A new photoacid generator having the formula



- Formula 1

wherein
 R=hydrogen, hydroxyl, or the $-\text{O}-\text{S}(=\text{O})-\text{O}-$ moiety
 $\text{Q}=\text{CH}(\text{CH}_3)\text{COO}-\text{O}-\text{Q}'$ or $-\text{NO}_2$
 $\text{Q}'=\text{CH}_2\text{CH}_2\text{CH}_2\text{COO}-\text{O}-\text{Q}''$
 $\text{Q}''=\text{lower alkyl hydrogen}$
 R'=hydrogen, $-\text{CH}(\text{CH}_3)\text{COO}-\text{O}-$ or $-\text{NO}_2$ and
 Q is a diazoquinophosphine moiety with the group
 R, Q is lower alkyl, when R' is $-\text{CH}(\text{CH}_3)\text{COO}-\text{O}-$ and
 with the proviso that R' is R and R' is R

This compound is photochemically transformed from a non-acidic entity to photoproducts which contain both sulfonic and carboxylic acid functional groups. The acid generator is effective with polymers having acid labile groups, converting these into alkaline-soluble polymers, and with polymers which do not have such acid labile groups. Positive or negative working photoresist compositions containing the new photoacid generator have unparalleled performance characteristics because of the increased acidity generated per quantum of light.

A preferred photoacid generator is made by reacting 2,6-dimethyl-3,5-dinitro-*p*-nitrophenol with a diazoquinophosphine anion.

12 Claims, 1 Drawing Sheet

[2] Details [3] Text [4] Image [5] HTML

Koss

[2] Details [3] Text [4] Image [5] HTML

Full

TITLE: Radiation sensitive resin composition

PUBN-DATE: February 24, 1999

INVENTOR-INFORMATION:

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SHIMIZU, MAKOTO	JP
TANABE, TAKAYOSHI	JP
IWANAGA, SHIN-ICHIRO	JP

ASSIGNEE-INFORMATION:

NAME	COUNTRY
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APPL-NO: EP98115537

APPL-DATE: August 18, 1998

PRIORITY-DATA: JP23549597A (August 18, 1997)

INT-CL (IPC): G03F007/004

EUR-CL (EPC): G03F007/004

ABSTRACT:

CHG DATE=19990905 STATUS=O> Positive as well as negative radiation sensitive resin compositions that, in addition to being capable of providing excellent resolution and pattern profile, are particularly excellent in avoiding the problems of "nano-edge roughness" or "coating surface roughness". The positive type radiation sensitive resin composition comprises (A) (a) an acid-decomposable group-containing resin, or (b) an alkali-soluble resin and an alkali dissolution controller, and (B) a photoacid generator comprising "a" compound that upon exposure to radiation generates a carboxylic acid having a boiling point of 150 DEG C or higher", and "a" compound that upon exposure to radiation generates an acid other than a carboxylic acid". The negative type radiation sensitive resin composition comprises (C) an alkali-soluble resin, (D) across-linking agent, and the component (B) as described above. <IMAGE>



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European Patent Office
Office européen des brevets

(11) EP 0 898 201 A1

EUROPEAN PATENT APPLICATION

(12) (43) Date of publication: 24.02.1999, Stuttgart 1999, 08

(51) Int. Cl.: G03F 7/004

(21) Application number: 98115537

(22) Date of filing: 18.08.1998

(34) Designated Contracting States: AT BE CH CY DE DK EB FI FR GB GR IE IT LI LU MC NL PT SE
Designated Extension States: AL LT LV MK RO SI

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(30) Priority: 18.08.1997 JP 23549597

(71) Applicant: JSR Corporation
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(54) Radiation sensitive resin composition

(57) Positive as well as negative radiation sensitive resin compositions that, in addition to being capable of providing excellent resolution and pattern profile, are particularly excellent in avoiding the problems of "nano-edge roughness" or "coating surface roughness". The positive type radiation sensitive resin composition comprises (A) (a) an acid-decomposable group-containing resin, or (b) an alkali-soluble resin and an alkali dissolution controller, and (B) a photoacid generator comprising "a" compound that upon exposure to radiation generates a carboxylic acid having a boiling point of 150°C or higher", and "a" compound that upon exposure to radiation generates an acid other than a carboxylic acid". The negative type radiation sensitive resin composition comprises (C) an alkali-soluble resin, (D) across-linking agent, and the component (B) as described above.

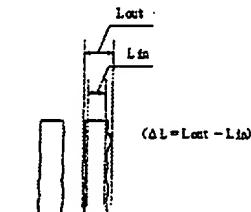


FIGURE 1

EP 0 898 201 A1

Printed by Patent-Layout Business Services

E1.7.03

TITLE: Radiation sensitive resin composition

PUBN-DATE: February 24, 1999

INVENTOR-INFORMATION:

NAME	COUNTRY
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ASSIGNEE-INFORMATION:

NAME	COUNTRY
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APPL-NO: EP98115537

APPL-DATE: August 18, 1998

PRIORITY-DATA: JP23549597A (August 18, 1997)

INT-CL (IPC): G03F007/004

EUR-CL (EPC): G03F007/004

ABSTRACT:

CHG DATE=19990905 STATUS=O> Positive as well as negative radiation sensitive resin compositions that, in addition to being capable of providing excellent resolution and pattern profile, are particularly excellent in avoiding the problems of "nano-edge roughness" or "coating surface roughness". The positive type radiation sensitive resin composition comprises (A) (a) an acid-decomposable group-containing resin, or (b) an alkali-soluble resin and an alkali dissolution controller, and (B) a ~~photocacid~~ generator comprising "a compound that upon exposure to radiation generates a ~~carboxylic acid~~ having a boiling point of 150 DEG C or higher", and "a compound that upon exposure to radiation generates an acid other than a ~~carboxylic acid~~". The negative type radiation sensitive resin composition comprises (C) an alkali-soluble resin, (D) across-linking agent, and the component (B) as described above. <IMAGE>

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(19) European Patent Office
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(11) EP 0 898 201 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication: 04.02.1999 Stuttgart 1999/08

(21) Application number: 89115537.7

(22) Date of filing: 18.08.1998

(34) Designated Contracting States:
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MC NL PT SE
Designated Extension States:
AL LT LV MK RO SI

- Gotohzu, Makoto
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(30) Priority: 18.08.1997 JP 23549597

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(34) Radiation sensitive resin composition

(57) Positive as well as negative radiation sensitive resin compositions that, in addition to being capable of providing excellent resolution and pattern profile, are particularly excellent in avoiding the problems of "nano-edge roughness" or "coating surface roughness". The positive type radiation sensitive resin composition comprises (A) (a) an acid-decomposable group-containing resin, (B) (i) an alkali-soluble resin and an alkali dissolution controller, and (B) a ~~photocacid~~ generator comprising "a compound that upon exposure to radiation generates a carboxylic acid having a boiling point of 150°C or higher", and "a compound that upon exposure to radiation generates an acid other than a carboxylic acid". The negative type radiation sensitive resin composition comprises (C) an alkali-soluble resin, (D) across-linking agent, and the component (B) as described above.

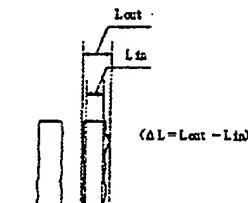


FIGURE 1

EP 0 898 201 A1

Printed by Patent-Search-System
2-12-98

DERWENT-ACC-NO: 1999-134799

DERWENT-WEEK: 200055

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TITLE: Positive and negative radiation sensitive resin compositions - containing mixed **photocatal** generator, which forms **carboxylic acid** of specified boiling point and noncarboxylic acid

----- KWIC -----

Title - TIX (1):

Positive and negative radiation sensitive resin compositions - containing mixed **photocatal** generator, which forms **carboxylic acid** of specified boiling point and noncarboxylic acid

Basic Abstract Text - ABTIX (1):

A positive-type radiation-sensitive resin composition comprises: (A) (a) an alkali-insoluble or an alkali low-soluble resin, which is protected by an acid-decomposable group and becomes alkali soluble when the protecting group is decomposed or (b) an alkali-soluble resin and an alkali dissolution controller, and (B) a **photocatal** generator comprising 2 or more compounds, one of which, on exposure to radiation, generates a **carboxylic acid** and of boiling point of 150 deg. C or higher at atmospheric pressure and another of which generates an acid other than a **carboxylic acid** on exposure to radiation. Also claimed is a negative-type radiation-sensitive resin composition comprising (C) an alkali-soluble resin, (D) a compound that can crosslink the alkali-soluble resin in the presence of an acid; and (E) a **photocatal** generator as (B) above.

Equivalent Abstract Text - ABEQ (1):

A positive-type radiation-sensitive resin composition comprises: (A) (a) an alkali-insoluble or an alkali low-soluble resin, which is protected by an acid-decomposable group and becomes alkali soluble when the protecting group is decomposed or (b) an alkali-soluble resin and an alkali dissolution controller, and (B) a **photocatal** generator comprising 2 or more compounds, one of which, on exposure to radiation, generates a **carboxylic acid** and of boiling point of 150

United States Patent (1) US Patent Number: 6,136,500
Kobayashi et al. (45) Date of Patent: Oct. 24, 2000

(54) RADIATION SENSITIVE RESIN COMPOSITION
(73) Inventor: Etsuji Kobayashi; Makoto Shimura; Takayoshi Tanabe; Shigeo Adachi; Iwengawa, all of Yokohama, Japan

(75) Assignee: JSR Corporation, Tokyo, Japan

(21) Appl. No.: 09/132,833

(22) Filed: Aug. 18, 1998

(31) Foreign Applications Priority Data

Aug. 18, 1997 [JP] Japan 9-235461
(51) Int. Cl.: G03F 7/00; G03F 7/029
(52) U.S. Cl.: 433/270.1; 436/14; 430/922
(56) Field of Search: 433/270.1, 914, 430/922

(15) References Cited

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5,653,029 5/13/97 Maeda et al. 432/270

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43 23 359 12/1995 Germany

Primary Examiner—Janet Stover
Assistant Examiner—Roxanne Astacio
Attorney, Agent, or Firm—Oshio, Spike, McClellan, Inc.,
Mail: 4 Newark, P.C.

(57) ABSTRACT

Positive as well as negative radiation sensitive resin compositions that, in addition to being capable of providing excellent resolution and pattern profile, is particularly suitable for the production of a negative-type radiation sensitive resin composition. The positive-type radiation sensitive resin composition comprises (A) (a) an acid-decomposable group-containing resin, or (b) an alkali-soluble resin and an alkali dissolution controller, and (2) a **photocatal** generator comprising a compound that upon exposure to radiation generates a carboxylic acid having a boiling point of 150 C. or higher, and a compound that upon exposure to radiation generates an acid other than a carboxylic acid. The negative-type radiation sensitive resin composition comprises (C) an alkali-soluble resin, (D) a crosslinking agent, and the component (B) as described above.

12 Claims, 1 Drawing Sheet

DERWENT-ACC-NO: 1993-236284

DERWENT-WEEK: 199724

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TITLE: Photoresist compsn. for prodn. of semiconductor devices - effective for pattern formation using deep UV light and excimer laser beams

----- KWIC -----

Equivalent Abstract Text - ABEQ (1):

A photoresist composition comprising (a) a resin which hardly dissolves in alkali obtainable by reacting isopropenyl alkyl ether, 2-alkoxy-1-buten e, isopropenyl trimethylsilyl ether or isopropenylbenzyl ether with a resin having phenolic hydroxyl groups, (b) a photosensitive compound which generates a carboxylic acid upon exposure to light as the photogenerated generator, and (c) a solvent capable of dissolving the components (a) and (b).

US5627006A

United States Patent (19)

(14) Patent Number: 5,627,006

(43) Date of Patent: May 6, 1997

(24) KINETIC MATERIAL

(73) Inventor: Masayoshi Urano; Keiji Oono; Hirotsugu Fujita, all of Kawagoe, Japan

(73) Assignee: Vale Pure Chemical Industries, Ltd., Matsushita Electric Industrial Co., Ltd., both of Osaka, Japan

(11) Appl. No.: 08/229,229

(22) Filing Date: Apr. 18, 1994

Related U.S. Application Data

(13) Continuation of Ser. No. 08/151,544, Aug. 24, 1994, abandoned, which is a continuation of Ser. No. 08/029,297, Dec. 11, 1992, abandoned.

(34) Foreign Application Priority Data

Dec. 14, 1991 (10) Japan 3-337353

(34) Int. Cl. 4 G43F 7/02; G43F 7/04

(11) U.S. Cl. 430/192; 430/170; 430/221; 430/223; 430/224

221/23; 221/29

(58) Field of Search: 430/190, 270, 152, 220, 224, 225, 322, 323, 34, 59

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Primary Examiner-John S. Cho
Attorney, Agent, or Firm—Kunzberg, Weisman, Elcock
Makinson, Elcock & Kunzberg

(57) ABSTRACT

A photoresist composition comprising (a) a difficultly soluble special resin, (b) a photo-sensitive compound capable of generating a carboxylic acid and (c) a solvent is effective for pattern formation using deep ultraviolet light, KrF excimer laser beams, etc.

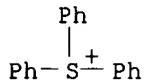
14 Claims, 1 Drawing Sheet

L14 ANSWER 1 OF 17 CAPLUS COPYRIGHT 2002 ACS
 AN 2002:673047 CAPLUS
 TI Storage-stable excimer laser-sensitive positive-working photosensitive compositions with reduced pattern variation on defocusing
 IN Kodama, Kunihiko; Sato, Kenichiro
 PA Fuji Photo Film Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 86 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002251012	A2	20020906	JP 2001-48784	20010223
AB	The compns. comprise (A) photoacid generators, (B) resins contg. alicyclic hydrocarbon structures, which increase their alkali solv. by acid decomprn., (C) base compds., and (D) fluoro- and/or silicone-based surfactants, wherein the photoacid generator is a mixt. of triarylsulfonium salts and non-arom. sulfonium salts. The compns. are useful for chem. amplified photoresists suitable for halftone phase-shift masks.				
IT	INDEXING IN PROGRESS				
IT	19600-49-8, Triphenylsulfonium acetate RL: TEM (Technical or engineered material use); USES (Uses) (base compd.; chem. amplified storage-stable excimer laser-sensitive pos. photoresists with reduced pattern variation on defocusing)				
RN	19600-49-8 CAPLUS				
CN	Sulfonium, triphenyl-, acetate (8CI, 9CI) (CA INDEX NAME)				

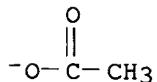
CM 1

CRN 18393-55-0
 CMF C18 H15 S



CM 2

CRN 71-50-1
 CMF C2 H3 O2



L14 ANSWER 7 OF 17 CAPLUS COPYRIGHT 2002 ACS
 AN 2002:292085 CAPLUS
 DN 136:332792
 TI IR laser heat mode type negative working lithographic printing plate master
 IN Shimada, Kazuto; Nakamura, Ippei; Sorori, Tadahiro
 PA Fuji Photo Film Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 25 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002116539	A2	20020419	JP 2000-310808	20001011

OS MARPAT 136:332792

AB The title heat mode type neg. working lithog. printing plate master contains (A) an onium type polymn. initiator, (B) a photothermal conversion compd., (C) a polymerizable compd., and (D) a borate compd. represented by Ar4B-M⁺ (M⁺ = cation; Ar = arom.) in a photosensitive layer. The printing plate master shows excellent sensitivity and storage stability.

IT 19600-49-8

RL: CAT (Catalyst use); USES (Uses)
(polymn. initiator in photosensitive layer of IR laser heat mode type neg. working lithog. printing plate master to improve sensitivity as well as storage stability)

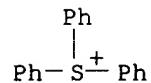
RN 19600-49-8 CAPLUS

CN Sulfonium, triphenyl-, acetate (8CI, 9CI) (CA INDEX NAME)

CM 1

CRN 18393-55-0

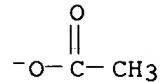
CMF C18 H15 S



CM 2

CRN 71-50-1

CMF C2 H3 O2



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L1 STRUCTURE UPLOADED
L2 1 S L1 FULL
L3 116 S C2 H4 O2/MF
L4 0 S TRIPHENYLSULFONIUM ACETIC ACID
L5 7 S TRIPHENYLSULFONIUM AND CARBOXYLATE
L6 2 S METHYLCARBOXYLIC ACID
L7 1 S METHYLENECARBOXYLIC ACID
L8 1 S DIPHENYLIODONIUM CARBOXYLATE
L9 0 S DIPHENYLIODONIUM METHYLENECARBOXYLATE
L10 0 S DIPHENYLIODONIUM METHYLENECARBOXYLIC ACID
L11 1 S DIPHENYLIODONIUM ACETATE
L12 1 S TRIPHENYLSULFONIUM ACETATE

FILE 'CAPLUS' ENTERED AT 10:46:14 ON 23 SEP 2002

L13 16 S L11
L14 17 S L12
L15 104214 S CARBOXYLIC ACID
L16 3 S L14 AND L15

FILE 'REGISTRY' ENTERED AT 10:54:52 ON 23 SEP 2002

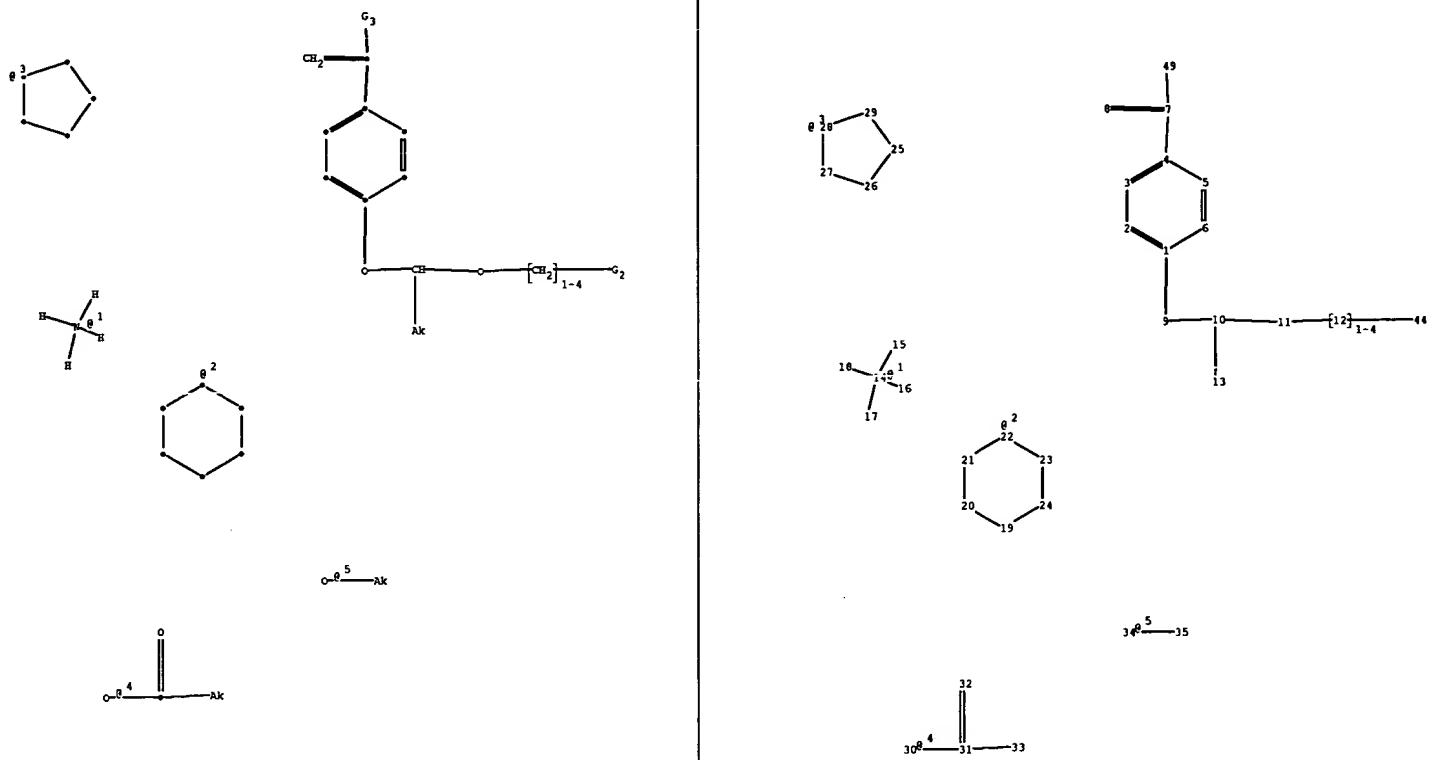
L17 STRUCTURE UPLOADED
L18 87 S L17 FULL

FILE 'CAPLUS' ENTERED AT 10:55:42 ON 23 SEP 2002

L19 34 S L18
L20 3 S L15 AND L19

FILE 'USPATFULL' ENTERED AT 11:10:55 ON 23 SEP 2002

L21 28250 S CARBOXYLIC ACID AND SULFONIC ACID
L22 53836 S PHOTORESIST
L23 915 S L21 AND L22
L24 19759 S SURFACTANT AND POSITIVE
L25 294 S L24 AND L23



chain nodes :

7 8 9 10 11 12 13 14 15 16 17 18 30 31 32 33 34 35 44
49

ring nodes :

1 2 3 4 5 6 19 20 21 22 23 24 25 26 27 28 29

chain bonds :

1-9 4-7 7-8 7-49 9-10 10-11 10-13 11-12 12-44 14-15 14-16
14-17 14-18 30-31 31-32 31-33 34-35

ring bonds :

1-2 1-6 2-3 3-4 4-5 5-6 19-20 19-24 20-21 21-22 22-23 23-24
25-26 25-29 26-27 27-28 28-29

exact/norm bonds :

1-9 7-49 9-10 10-11 10-13 12-44 30-31 31-32 31-33 34-35

exact bonds :

4-7 7-8 11-12 14-15 14-16 14-17 14-18 19-20 19-24 20-21 21-22
22-23 23-24 25-26 25-29 26-27 27-28 28-29

normalized bonds :

1-2 1-6 2-3 3-4 4-5 5-6

G2:Ph,SH,CN,NH2,N,[*1],[*2],[*3],[*4],[*5]

G3:H,CH3

Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:CLASS 8:CLASS 9:CLASS
10:CLASS 11:CLASS 12:CLASS 13:CLASS 14:CLASS 15:CLASS 16:CLASS
17:CLASS

18:CLASS 19:Atom 20:Atom 21:Atom 22:Atom 23:Atom 24:Atom
25:Atom 26:Atom 27:Atom 28:Atom 29:Atom 30:CLASS 31:CLASS 32:CLASS
33:CLASS 34:CLASS 35:CLASS 44:CLASS 49:CLASS

Element Count :

Node 13: Limited
C,C1-4

Node 33: Limited
C,C1-10

Node 35: Limited
C,C1-10